

Amendment Dated September 10, 2007
Serial No. 10/657,654

REMARKS

Reconsideration of the rejections set forth in the Office Action dated May 8, 2007, is respectfully requested in view of the Amendments to the claims and the following arguments. By this Amendment, the specification has been amended, the withdrawn claims (claims 1-7) have been canceled without prejudice or disclaimer, and elected original claims 8-21 have been replaced with new claims 22-38. Currently, claims 22-38 are pending in this application. These new claims relate to network devices and, accordingly, fall within the elected group of claims.

Objection to the specification

Applicants have amended the specification as helpfully requested by the Examiner. Specifically, applicants have changed "line interface units 32" at page 3, line 5 to -line interface units 22-. Accordingly, the Examiner is requested to withdraw this objection when acting on this Amendment.

Rejection under 35 USC 112

Claim 19 was rejected under 35 USC 112, second paragraph. Applicants have canceled this claim rendering the rejection moot.

Rejections under 35 USC 102 and 103

Claims 1-21 were rejected under 35 USC 102 and/or 103 over the Admitted Prior Art, Kamiya (U.S. Patent Application Publication No. 2002/0090007), Narvaez (U.S. Patent No. 7,164,860) and Mannam (U.S. Patent Application Publication 2004/0105459). Applicants have canceled the original claims and submit herewith a new set of claims that are believed patentable over the cited art.

The elected claims of this application relate to a network device that allows Generic Framing Procedure (GFP) to be used to transmit data over metallic links in a communication network. GFP was developed for use in optical networks. (See Specification at page 11, line 5). Applicants discovered that it was possible to use GFP to encapsulate data for transmission over a network implemented using electrically conductive wires, such as a copper network: (Specification at page 4, line 30 to page 5, line 19). To help convey this concept and to distinguish the claims from the use of GFP in an optical network, applicants defined the term

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"metallic link" to encompass links made of copper and other metallic materials, but to specifically not include materials such as optical fibers that are not electrically conductive. See (Specification at page 1, line 28 to page 2, line 2). Additionally, applicants defined the term "physical medium" to be a combination of a particular physical layer protocol and a given metallic link. (Specification at page 2, lines 13-15).

The admitted prior art and the three cited references do not contain a teaching that GFP may be used anywhere other than on an optical network. In connection with the rejection of claim 8, the Examiner stated that it was inherent that the subscriber premises equipment 10 was mapping protocol data units from multiple services onto a frame, and that this implied that there was a universal mapper on the subscriber premises equipment. Applicants disagree with this assertion.

At page 3, lines 19-25, applicants state that traffic from one or more services may be forwarded by the SPE to the central office over the metallic link." This was not an admission that a universal mapper such as a GFP mapper was being used, but rather an admission that multiple types of services may be carried over one type of metallic link. To explain this, applicants would like to direct the Examiner's attention to the specification at Page 3, line 27 to Page 4, line 6, and Fig. 2. As described in that section of the background, there are two things that are required to get data onto a wire – a framer and a mapper. Specifically, in the admitted prior art, one framer was required for each type of electrical wire connected to the network device. Thus, you would need an xDSL framer to frame traffic for the xDSL lines connected to the device, a DOCSIS framer to frame traffic for the television cables connected to the device, an E1/T1 framer for E1/T1 lines connected to the device, etc. These framers are shown in Fig. 2 as framers 24. In addition to these media specific framers, it was necessary for the network device to include a set of service specific mappers, so that the network access device could map protocol data units for the particular services (i.e. Ethernet and ATM services) onto the particular physical medium. Thus, if you had four types of electrical links and six types of services, the network access device would require 24 service mappers. Accordingly, in the admitted prior art, there were multiple framers and service specific mappers.

Applicants do not describe the manner in which the subscriber premises equipment is implemented, but if there is to be any inference to be drawn, it would be that the SPE would likewise include a framer for the particular type of metallic link connected to the device, and a

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collection of service specific mappers to map Protocol Data Units (PDUs) to the framer. Accordingly, applicants respectfully submit that the admitted prior art did not imply that a universal mapper was inherently included in the subscriber premises equipment.

The Examiner also indicated in the Office Action that it was well known that a universal mapper, such as a GFP engine, could encapsulate different types of packet inputs as defined by the GFP standard. Applicants respectfully traverse this assertion, as far as it applies to metallic links. Clearly GFP was known for optical links, since GFP was created to encapsulate data for transmission over optical fibers. Applicants respectfully traverse the assertion that it was well known for use on metallic links. If the Examiner maintains the assertion that GFP was known for use on metallic links, applicants respectfully request that the Examiner produce a reference that teaches this aspect because this is contrary to applicant's view of the state of the art at the time the application was filed.

Applicants have reviewed the other cited prior art references and it appears that they all relate to the use of GFP on optical media. See, e.g., Mannam at Paragraph 6 (describing the use of GFP over SONET); Narvaez at Col. 8, lines 58-67 (describing the use of a GFP engine on a chip to encapsulate different types of packets), and Narvaez Col. 7, lines 4-8 (describing the output of the chip as an OTU frame); and Kamiya at paragraph 6 (stating that GFP is an encapsulation technology for use in an optical transport network using wavelength division multiplexing). Thus, these references do not teach or suggest the use of GFP on an electrical physical medium.

Applicants have changed the claims to help focus prosecution of this application. Specifically, applicants have changed the claims to make it clear that the network device includes both a framer specific to the first type of physical medium, and a universal frame mapper associated with the first framer that reassembles first universal frames for processing by the network device. Thus, it is clear that the network device is processing GFP frames or other frames created using a universal mapper rather than a service specific mapper. Accordingly, these claims are believed to be patentable over the admitted prior art and the cited references, alone or in combination.

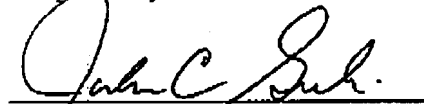
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Conclusion

Applicants are interested in moving prosecution forward, and would be very interested to talk with the Examiner about what applicants perceive as the novel invention, the admitted prior art, the cited art, and how applicants have structured the claims to attempt to avoid the rejections promulgated by the Examiner. Accordingly, applicants invite the Examiner to contact the undersigned at any time during the course of the prosecution to discuss this case. In particular, applicants would be happy to discuss this case with the Examiner to hopefully find patentable subject matter if the Examiner feels that a subsequent rejection of the claims continues to be warranted. Likewise, if there are any questions or concerns regarding the amendments or these remarks, the Examiner is requested to telephone the undersigned at the telephone number listed below.

If any fees are due in connection with this filing, the Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 502246 (Ref: NN-16074).

Respectfully Submitted


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